September 2d, 1851.

Vice-President BRIDGES in the Chair.

A letter was read from the Trustees of the New York State Library, dated Albany, August 11th, 1851, acknowledging the receipt of late numbers of the Proceedings.

Also a letter from Mrs. Charlotte H. Townsend, dated Philadelphia, 1851, returning her acknowledgments for certain resolutions recently adopted by the Academy.

Mr. Lea remarked that he had observed in a recent number of the Proceedings of the Boston Society of Natural History, a communication on the subject of the "Wave Theory," in regard to the dynamics of earthquakes. He observed that this "wave theory" was by no means of as recent a date as was generally imagined, and stated that Dr. Franklin, while in France in 1782, distinctly suggested this wave motion, produced by a central force reaching to an immense distance. Mr. L. read part of Dr. Franklin's letter to the Abbé Soulavie, Trans. Am. Phil. Soc., vol. 3 p. 1, old series,) dated at Passey, September 22, 1782, in which he says, "But we are still subject to the accidents on the surface, which are occasioned by a wave in the internal ponderous fluid; and such a wave is producible by the sudden violent explosion you mention, happening from the junction of fire and water under the earth, which not only lifts the incumbent earth which is over the explosion, but impressing with the same force the fluid under it, creates a wave that may run a thousand leagues, lifting thereby successively all the countries under which it passes."

September 9th.

Vice-President BRIDGES in the Chair.

A communication was read from Aug. A. Gould, M. D., and D. Humphreys Storer, M.D., Executors of the late Amos Binney, M. D., of Boston, dated Boston, July, 1851, presenting, in accordance with his will, a copy of Vols. 1 and 2 of his work on the Terrestrial Mollusks of the United States.

Dr. Leidy called the attention of members to a fragment of rock a few inches square, covered upon one surface with numerous root-like fibres, which he stated belonged to a species of branching, fresh water, ciliated polyps of the genus Plumatella. The piece had been broken from a slab 18 inches square, which was entirely covered upon its under surface in the same manner. The species he characterized as follows:

PLUMATELLA, *Bosc.*

PLUMATELLA DIFFUSA, *n. s.*

Polypidom diverging from a centre over large surfaces, consisting of a series of simple curved branches, from one to two lines long, rising from one another upon the convex side, and attached throughout their length except at the extremities for 1-3th to 2-5ths of a line, which are erect, keg-shaped, or a little dilated at the middle and contracted at the orifices. Border of the orifices

deeply emarginate and continuous, with a fissure down the inner or concave side of the branches, upon the summit of a slight ridge. Color dirty olivaceous brown, with the erect extremities of the branches yellowish or translucent whitish.

Polyp with 42 divergent, sigmoid tentaculæ, arranged at their summits in the outline of a reniform disk. Length of the tentaculæ about 3-5ths line. Color of the stomach greenish yellow.

Ovum with its marginal sheath semi-oval, 1-68th in. long, 1-333d in. broad. Sheath whitish, translucent, smooth, cellular; with the aperture upon its convex side 1-142d in. in diameter; that upon the flat side 1-133d in. Ovum lenticular, reddish brown.

Habitation —Upon the under surface of stones which do not come in contact entirely with the ground, in running brooks and creeks emptying into the Schuylkill and Delaware rivers, and also in the latter.

Remarks.—This species of Plumatella appears to prefer for its residence stones of large size. It is not common to find it on such as are under 3 or 4 inches square, but is frequently seen covering surfaces closely from one to several feet square, upon which I have counted from 150 to 300 polyps to the square inch. It also flourishes best in the course of currents of moderate strength.

The object of its occupying the under surface of stones appears to be not so much to escape from the light, as it is to favor the removal of the abundant excrement, which is voided in the form of oblong, greenish or clay colored pellets.

The interior structure of Plumatella corresponds pretty closely with those of Alcyonella.

The extruded ova are frequently found attached to rocks, generally by the flat side, but sometimes by the convex side.

The sheath of the ovum is composed of transparent colorless cells, about the 1-4000th in. in diameter.

Whilst observing this species of Plumatella under a lens, I noticed several small aquatic larvæ, probably of a species of Hydrophilus, according to my friend Dr. Le Conte, which would advance the anterior part of the body, up the erect portion of the branches of the polypidom, with all the stealth of a spider, until upon a level with the margin of the orifices, when they would suddenly dart with great rapidity upon the body of the polyps; but in every instance, for a quarter of an hour in which I observed them, the latter succeeded in escaping by contracting within the tubes, where the larvæ appeared not to be disposed to follow them.

Dr. Leidy observed that he had for some time past been collecting materials towards elucidating the natural history of the family of Gordiaceæ, *Siebold,* upon which he was now preparing a memoir for the Journal.

Our most common species has been confounded with the Gordius aquaticus, *L.*, of Europe, but a striking character at once proves it to be distinct. The caudal extremity of the female is trifurcated, while that of the European species is blunt.* The length is from 4 to 12 inches. Of this species there are several varieties from different localities, which may, upon further comparison, prove to be distinct species.

* Siebold: Arch. f. Naturg. 1838, p. 303.

To this species the name Gordius varius was proposed. A second species of Gordius was obtained by Professor Baird from a spring in Essex County, New York. It is very much more delicate than the former, and from 5 to 7 inches long. The female caudal extremity is blunt. The male caudal extremity is bifurcate and fringed with peculiar epidermoid appendages.

For this second species the name Gordius lineatus was proposed.

Dr. L. also had found several remarkable species of Mermis, *Dujardin*.

Eleven specimens of one species were procured by Dr. Budd from a ditch in New Jersey. These are yellowish white in color, and from 6 to 18 inches in length. To the species the name Mermis elongata was given.

A second species was found in a ditch near Philadelphia. It is pure white in color, 8 inches long, and has a peculiar tubercular thickening of the integument upon the caudal extremity. For this species the name Mermis crassicaudata was proposed.

Dr. L. further remarked that he had lately had an opportunity of repeating his former investigations* upon the embryology of Gordius varius.

The embryology of Gordius aquaticus, *L.*, had been studied and published by Gruby† before he had published his notes, but he did not know it at the time, which he considered important, as the observations conducted in two parts of the world, though' differing in several specific points, were generally confirmatory of one another.

The perfect embryo of Gordius varius differs so much from the parent that it is impossible to recognise the latter in the former. This has two circles of protractile tentaculæ, each of six, and a protractile proboscis, not uncinate, however, as in the embryo of Gordius aquaticus‡, no trace of which exist in the parent. The body of the embryo consists of two portions, and is distinctly annulated, while the parent is simply hair-like in form, and has no trace of an annulated integument. Gruby remarks he never saw the Gordius, excepting the embryo, shorter than $3\frac{3}{4}$ inches,§ so that between the annulose, tentaculated embryo, in the Gordius varius the 1-466th of an inch in length, and the parent of at least $3\frac{3}{4}$ inches, nothing whatever is known of the history of the animal. Gordii have been stated upon numerous and the most reliable authorities to have been seen in the body of insects, so that from the embryo to the parent, there may probably be a series of forms in alternating generation, entozoic and ectozoic, as numerous and unlike as has been observed in the development of certain species of Distoma.

The Gordius varius is prolific in a very remarkable degree. A female 9 inches in length placed in a tumbler of water, September 25th, up to the present time has extruded a string of ova 49 inches in length and still actively continues the process.

September 16th.

Vice President BRIDGES in the Chair.

Dr. Le Conte, of New York, read a continuation of his paper, entitled "An Attempt to classify the Longicorn Coleoptera of the part of America north of Mexico;" which being intended for publication in

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* Proc. Acad. Nat. Sci., Vol. 5, p. 98.
† Archiv fur Naturgesch. 1849, p. 358.
‡ Ibid, pl. 7, fig. 10.
§ Ibid, p. 374.